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(54) IMAGE MONITOR SYSTEM AND IMAGE MONITOR METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an image monitor system an image storage type that can reduce a retrieval time and storage capacity of image data, record image data at the moment of a fault occurrence point of time with high reliability and recognize the process until the occurrence of a fault to some degree.

SOLUTION: A change quantity calculation section 110a calculates image change quantity per unit time denoting rapidness of a time change in an image, a fault level setting section 103a sets a fault level on the basis of the image change quantity per unit time, a recording rate setting section 104a sets a recording rate for a detailed recording when the fault level is high. A monitor log write section 105a writes the image data according to the recording rate together with attached information consisting of the fault level, a monitored place and a

monitor time to a monitor log storage section 106.

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reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] Sample the image frame which the object for a monitor is picturized with a camera and obtained by time series, and it stores in the storage section. The image frame which is the image monitoring system which searches and presents the image frame stored when having grasped the situation of abnormalities subsequently, and is obtained by time series is referred to. A change detection means to detect the change of state for a monitor, and a spacing setting-out means to set up the sampling period of the image frame stored in the storage section according to the detected change of state, Image monitoring system characterized by having a set-up storing means to store an image frame in the storage section for every sampling period.

[Claim 2] Said change detection means detects the level which shows the magnitude of a change of state. Said storing means The level of the detected change of state is matched with said image frame, and it stores in the storage section. Said image monitoring system Furthermore, a level input means to

specify retrieval of an image frame with the level of a change of state, Image monitoring system according to claim 1 characterized by having a retrieval means to search the image frame corresponding to the specified level from said storage section, and a presentation means to show said searched image frame.

[Claim 3] A sensing means for said image monitoring system to detect further the voice produced in the object for a monitor, temperature, humidity, an atmospheric pressure, gas, the MAG, an oscillation, or an electric wave, and to generate sensor information, It has a presentation means to show the image frame stored in storage circles. Said storing means When the level of the detected change of state is beyond a predetermined value, the sensor information generated by said sensing means is matched with said image frame, and it stores in the storage section. Said presentation means Image monitoring system according to claim 1 characterized by showing the sensor information stored in the storage circles corresponding to the image frame which it is going to show.

[Claim 4] said storing means -- a time check -- the image monitoring system according to claim 1 characterized by having matched with said image frame the storing time of day of the image frame which it is going to store including the timer, having stored in the storage section, and equipping said image monitoring system with a presentation means to show the image frame stored in storage

circles with the same time interval as spacing of the storing time of day of the image frame concerned, further.

[Claim 5] Said spacing setting-out means is image monitoring system according to claim 2 which sets up a sampling period according to the level of a change of state, and is characterized by said presentation means presenting said searched image frame with the same time interval as the sampling period corresponding to the level of the change of state of the image frame concerned.

[Claim 6] Said image monitoring system acquires an image frame for two or more objects for a monitor of every. Said change detection means Change is detected for every image frame with which the objects for a monitor differ. Said spacing setting-out means The sampling period of the every for a monitor is set up. Said storing means An image frame is matched with the object for a monitor of the image frame concerned, and it stores in the storage section for every sampling period in this object for a monitor concerned. Said image system Furthermore, image monitoring system according to claim 1 characterized by having an input means to specify retrieval of an image frame per object for a monitor, a retrieval means to search the image frame corresponding to the specified object for a monitor from said storage section, and a presentation means to show said searched image frame.

[Claim 7] Further, said image monitoring system receives the spacing setting-out

means concerned, when the sampling period in the object for a monitor of 1 is set below to a predetermined value by said spacing setting-out means. setting out of the sampling period in other objects for a monitor relevant to the object for a monitor of 1 is stopped -- making -- being concerned -- others -- the image monitoring system according to claim 6 characterized by having the control means which sets the sampling period in the object for a monitor as the same value as the sampling period for [of 1] a monitor.

[Claim 8] Said change detection means is image monitoring system according to claim 1 characterized by detecting the change of state for a monitor based on the criteria image frame beforehand remembered to be the image frame obtained by time series.

[Claim 9] Said change detection means is image monitoring system according to claim 1 characterized by detecting the change of state for a monitor based on an image frame before and after being obtained by time series.

[Claim 10] Said change detection means is image monitoring system according to claim 8 or 9 characterized by detecting the change of state for a monitor between said two image frames based on the number of pixels with which the pixel value changed.

[Claim 11] Said change detection means is image monitoring system according to claim 8 or 9 characterized by comparing the color component between said

two image frames, and detecting the change of state for a monitor.

[Claim 12] Said change detection means is image monitoring system according to claim 8 or 9 characterized by comparing the power spectrum about the spatial frequency of the pixel value between said two image frames, and detecting the change of state for a monitor.

[Claim 13] It is the image monitoring system according to claim 1 which said change detection means detects the level of a change of state, and is characterized by said spacing setting-out means setting a sampling period as short spacing, so that the level of the detected change of state is large.

[Claim 14] It is the image monitoring system according to claim 1 characterized by for said change detection means detecting the level of a change of state, and said spacing setting-out means setting a sampling period as the same spacing as the time interval of the image frame obtained by time series when the level of the detected change of state is beyond a predetermined value.

[Claim 15] The terminal unit which samples the image frame which is picturized with a camera and obtained by time series, and is transmitted to center equipment, It is the image monitoring system which consists of center equipment which searches and presents the image frame which stored the received image frame in the storage section, and was stored when having grasped the situation of abnormalities subsequently. A means to receive the data which said terminal

unit shows the sampling period of an image frame from center equipment, It has a means to transmit an image frame to center equipment, for said every sampling period. Said center equipment A change detection means to detect the change of state for a monitor with reference to the received image frame, Image monitoring system characterized by having a spacing setting-out means to set up the sampling period of an image frame, a means to transmit the data in which said sampling period is shown to a terminal unit, and a storing means to store the received image frame in the storage section, according to the detected change of state.

[Claim 16] Sample the image frame which is picturized with a camera and obtained by time series, and it stores in the storage section. The image frame which is the image monitor approach of searching and showing the image frame stored when having grasped the situation of abnormalities subsequently, and is obtained by time series is referred to. The step which detects the change of state for a monitor, and the step which sets up the sampling period of the image frame stored in the storage section according to the detected change of state, The image monitor approach characterized by including the set-up step which stores an image frame in the storage section for every sampling period.

[Claim 17] Sample the image frame which is picturized with a camera and obtained by time series, and it stores in the storage section. The image frame

which is the record medium which recorded the program which searches and presents the image frame stored when having grasped the situation of abnormalities subsequently, and in which computer reading is possible, and is obtained by time series is referred to. The step which detects the change of state for a monitor, and the step which sets up the sampling period of the image frame stored in the storage section according to the detected change of state, The record medium which recorded the program which makes a computer perform the set-up step which stores an image frame in the storage section for every sampling period and in which computer reading is possible.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention accumulates the image of a surveillance camera and relates to the image monitoring system of the image storage mold which reproduces it subsequently and grasps the situation and its cause of the abnormality situation.

[0002]

[Description of the Prior Art] From the former, a surveillance camera is installed in a building, works, etc. and image monitoring system which supervises generating of abnormalities, such as an outbreak of a fire and trespass, is put in practical use using the image data obtained from a surveillance camera. The thing equipped with the function which accumulates the image data generated with the surveillance camera is also in such image monitoring system.

[0003] In the image monitoring system equipped with such an are recording function, the situation and its cause of the abnormality situation can be grasped by reproducing and seeing the image data accumulated after generating of the abnormality situation.

[0004]

[Problem(s) to be Solved by the Invention] However, in the above image monitoring system, since all the image frames (they are 30 etc. frames etc. in 1 second) that digitize the image of a surveillance camera and are generated are usually recorded, the amount of records cannot but become large. Moreover, reproducing the huge image data in are recording equipment, the image at the abnormality event must be found and there is a problem of requiring for retrieval for a long time.

[0005] On the other hand, the approach which does not record all the image frames obtained from the surveillance camera, but is recorded on every fixed

time amount (for example, 10 seconds) can be considered. Although the amount of records can be reduced to be sure and retrieval time can also be shortened by this approach, it can be failed to record the important image frame which is a flash at the abnormal occurrence event. Moreover, as the other approaches, by the sensor of an image processing or others, abnormalities are detected and how to record only the image frame before and behind an abnormal occurrence is also considered. Although surely the amount of records and retrieval time are made few in case of this approach, since it is restricted to the image frame before and behind an abnormal occurrence, being accumulated cannot meet such a demand to know the process of a delicate change until it results in a fire (abnormalities) in the case of a fire. The reference value concerned usually takes decision whether to be unusual or not to in addition to this being what is determined by whether it is over the time variation of an image frame, or the reference value with a fixed value of a sensor. The direction moreover, by how The image frame at the time of abnormalities having not occurred can be recorded too much so much, or even the image frame of the flash of an abnormal occurrence cannot be recorded on reverse, and the same problem as an above-mentioned approach will arise.

[0006] then -- while this invention is make in view of this trouble , record an image frame efficiently without futility and being able to shorten retrieval time --

the image frame of the flash at the abnormality event -- advanced soundness -- have -- record -- in addition -- and a certain extent also aims the process to abnormalities at offer the image monitoring system and the image monitor approach of an image storage mold that the harmony which can be know was able to be took .

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned object, this invention samples the image frame which the object for a monitor is picturized with a camera and obtained by time series, and stores it in the storage section. The image frame which is the image monitoring system which searches and presents the image frame stored when having grasped the situation of abnormalities subsequently, and is obtained by time series is referred to. It has a change detection means to detect the change of state for a monitor, a spacing setting-out means to set up the sampling period of the image frame stored in the storage section according to the detected change of state, and a set-up storing means to store an image frame in the storage section for every sampling period.

[0008] Moreover, the terminal unit which samples the image frame which this invention is picturized with a camera and obtained by time series, and is transmitted to center equipment, It is the image monitoring system which consists of center equipment which searches and presents the image frame

which stored the received image frame in the storage section, and was stored when having grasped the situation of abnormalities subsequently. A means to receive the data which said terminal unit shows the sampling period of an image frame from center equipment, It has a means to transmit an image frame to center equipment, for said every sampling period. Said center equipment A change detection means to detect the change of state for a monitor with reference to the received image frame, According to the detected change of state, it has a spacing setting-out means to set up the sampling period of an image frame, a means to transmit the data in which said sampling period is shown to a terminal unit, and a storing means to store the received image frame in the storage section.

[0009]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using a drawing.

The gestalt of <operation gestalt of ** 1st> book operation sets up abnormality level according to the time amount variation of the image frame from a surveillance camera, and is related with the image monitoring system which accumulates an image frame with the abnormality level (it uses as a search key) concerned at the record rate according to abnormality level.

(Configuration of image monitoring system) Drawing 1 is the block diagram

showing the image structure of a system concerning the gestalt of this operation. The image monitoring system 100 is what performs abnormality monitors, such as trespass in a building, and an outbreak of a fire. Photography section 101 a-c, image-processing section 102 a-c, and variation calculation section 110 a-c, It consists of abnormality level-setting section 103 a-c, record rate setting-out section 104 a-c, monitor log write-in section 105 a-c, the monitor log storage section 106, the input section 107, the retrieval section 108, the playback section 109, a display 130, and the timer section 150.

[0010] Photography section 101 a-c consists of CCD cameras, is installed in each key point in a building, photos the monitoring station which is an object for a monitor different, respectively, and generates a picture signal. Photography section 101a shall photo a monitoring station A (before a hallway entry), photography section 101b shall photo a monitoring station B (before the first floor receptionist), and photography section 101c shall photo a monitoring station C (before the first floor elevator).

[0011] For time amount variation calculation of the below-mentioned image, image-processing section 102a performs processing processing to the photoed image data, and consists of digital converter 124a, 1st memory 120a, 2nd memory 121a, 3rd memory 122a, and transform-processing section 123a. Digital converter 124a changes into digital image data (128 pixel x128 pixel, gray levels

0-16, 30 frames per second) the analog picture signal sent from photography section 101a, and sends it to 1st memory 120a.

[0012] 1st memory 120a memorizes the image data for one frame sent from digital converter 124a. Here, since the image data of 30 frames per second is sent from digital converter 124a, it is updated at 30 times of a rate in 1 second. Whenever transform-processing section 123a has the image data in this 1st memory 120a updated that is, it is copied to the 2nd memory at 30 times of a rate in 1 second, and performs transform processing of the image data concerned. After performing noise rejection processing of image data, specifically, threshold processing is performed and made binary. Just before transform-processing section 123a passes 1 / 30 seconds in the image data after the conversion in 2nd memory 121a, after delivery, and 1 / 30-second progress, the image data after conversion of the following frame is generated by 3rd memory 122a in 2nd memory 121a. In 2nd memory 121a and 3rd memory 122a, the image data which made binary the image frame with the exposure time difference for 1 / 30 seconds will be stored by the above.

[0013] Variation calculation section 110a computes the time amount variation which shows the violence of time amount change of an image every [1/] 30 seconds by comparing the image data in 2nd memory 121a with the image data in 3rd memory 122a, and sends the time amount variation concerned to

abnormality level-setting section 103a. the total which is specifically the pixel to the total number of pixels of image data (128x128) from which 0 and 1 changed between two image data -- let (%) be time amount variation comparatively.

[0014] From the time amount variation sent from variation calculation section 110a, abnormality level-setting section 103a sets up abnormality level, and notifies the value of the abnormality level concerned to record rate setting-out section 104a and the monitor log write-in section 106. Abnormality level shows the level of the possibility of the abnormal condition in a monitoring station based on the time amount variation of image data here, and setting out of a record rate which is mentioned later, and creation of the file for retrieval are performed based on this value. Drawing 2 shows the response relation between time amount variation and abnormality level. Since trespass and generating of the abnormality situations, such as a fire, are expected when time amount variation is large as shown in this drawing, abnormality level is set up highly.

[0015] Record rate setting-out section 104a sets up a record rate from the abnormality level set up by abnormality level-setting section 103a. A record rate shows the time interval (sampling period) which writes image data in the monitor log storage section 106 by monitor log write-in section 105a. Drawing 3 shows the response relation between abnormality level and a record rate. The record rate in abnormality level 1 says recording only one of 300 frames photoed in 10

seconds in 0.1 frames per second among this drawing. As shown in this drawing, when abnormality level is high, it is supposed that a record rate is set up highly and many frames are recorded.

[0016] Monitor log write-in section 105a writes image data in the monitor log storage section 106 according to the record rate set up by record rate setting-out section 104a with abnormality level, a monitoring station, and the attached information that consists of monitor time of day. Here, as image data, that by which reading appearance was carried out from 1st memory 120a is written in. Moreover, the identifier (A, B, or C) which pinpoints the location currently photoed as a monitoring station is written in. Moreover, as monitor time of day, the current time notified from the timer section 150 is written in.

[0017] The monitor log storage section 106 memorizes the image data and attached information which are written in by monitor log write-in section 105 a-c in an image file and the file for retrieval. Here, what has an image file and a retrieval file separate day by day [1] shall be created. The sequential addition writing of the image data is carried out at an image file. Drawing 4 shows the example of a format of the file for retrieval. As shown in this drawing, the file for retrieval records the record which consists of a record number, a pointer in the image file of image data, and attached information (a monitoring station, monitor time of day, abnormality level). A record number shall be given in order of the

record which is fixed within the limits set up for every monitoring station, and is recorded. The fixed range shall set up the magnitude which can record the record of the part on the 1st. Here, about a monitoring station A, whenever it is the range of "0" - "9999", and it is the range of "10000" - "19990", and is the range of "20000" - "29999" and records [monitoring station / C] the record about a monitoring station B, respectively, a record number shall be increased only for 1 one by one.

[0018] The input section 107 receives the access demand of an are recording image which specified abnormality level, a monitoring station, and monitor time of day from the operator. Drawing 5 shows the item inputted from the input section 107. The retrieval section 108 specifies the record in the monitor log file corresponding to the abnormality level and monitor time of day which were specified in the input section 107, and a monitoring station, and sends the record number to the playback section 109.

[0019] The playback section 109 reads attached information (abńormality level, a monitoring station, monitor time of day) and the pointer of image data from a monitor log file based on the record number sent from the retrieval section 108. Furthermore, the playback section 109 reads image data from an image file based on the pointer to the image data concerned. It asks for the playback section 109 from the response relation table showing the record rate

corresponding to the abnormality level concerned in drawing 3 . Moreover, the playback section 109 generates the alphabetic data in which attached information (abnormality level, a monitoring station, monitor time of day) is shown. And the playback section 109 is the same rate as a record rate, and sends the image data concerned and the alphabetic data concerned to a display 130.

[0020] A display 130 displays the image data and alphabetic data which are sent from the playback section 109. The timer section 150 notifies current time to monitor log write-in section 105 a-c.

(Are recording actuation of image data) The actuation which accumulates image data is explained in the image monitoring system concerning the gestalt of this operation. Drawing 6 is a flow chart which shows the operations sequence which accumulates image data. Here, it explains taking the case of actuation in case a monitoring station carries out monitor record of the image data near an entry (A).

[0021] In 1 second, photography section 101a is the rate of 30 frames, photos a monitoring station A, generates image data, and sends the image data (128 pixel x128 pixel, gray levels 0-16) concerned to 1st memory 120a in image-processing section 102a (step S2001). After transform-processing section 123a in image-processing section 102a copies the image data in 1st memory 120a to 2nd memory 121a and performs noise rejection of the image

data concerned, it is made binary by threshold processing (step S2002).

[0022] Between the binary-ized image data of the actual making of the tea, variation calculation section 110a specifies the pixel which is stored in the image data in 2nd memory 121a, and 3rd memory 122a and from which the pixel value is changing, and asks for the total at 1:00. And variation calculation section 110a computes the value which **(ed) the total concerned with the total number of pixels as time amount variation, and sends the time amount variation concerned to abnormality level-setting section 103a. As an example, time amount variation should be computed as "32%" here. And variation calculation section 110a moves the image data in 2nd memory 121a to 3rd memory 122a for the processing at degree event (step S2003).

[0023] Abnormality level-setting section 103a sets up the abnormality level corresponding to the computed time amount variation based on the response relation table shown in drawing 2 , and notifies the abnormality level concerned to record rate setting-out section 104a and monitor log write-in section 105a. As an example, abnormality level should be set as "3" here corresponding to 32% of time amount variation (step S2004).

[0024] Based on the response relation table shown in drawing 3 , record rate setting-out section 104a sets up the record rate corresponding to abnormality level, and sends the record rate concerned to monitor log write-in section 105a.

As an example, a record rate shall record image data at 1 time of a rate on "0.5 frames per second, i.e., 2 seconds," here corresponding to abnormality level "3" (step S2005).

[0025] Monitor log write-in section 105a writes image data and attached information in the image file and the file for retrieval in the monitor log storage section 106 according to the notified record rate. That is, monitor log write-in section 105a adds the image data of 1st memory 120a to an image file. Moreover, monitor log write-in section 105a writes in the pointer and attached information (it becomes the notified abnormality level "3" and the monitor time of day (current time notified from the timer section) from a monitoring station "A") in the image file of said written-in image data as one record of the file for retrieval (step S2006).

(Retrieval actuation of image data) Next, the actuation which searches and peruses image data is explained in the image monitoring system concerning the gestalt of this operation. Drawing 7 is a flow chart which shows the operations sequence which searches and peruses image data.

[0026] First, the access demand of an are recording image which carried out range assignment combining "abnormality level", "monitor time of day", a "monitoring station", or these through the input section 107 from the operator is inputted. As an example, as shown in drawing 5 , suppose that abnormality level

"3-5", monitor time of day, and a monitoring station "A" were specified at "1:00 on March 4, 00 to 4:00" here (step S3001).

[0027] Next, from the file for retrieval for days as which it was specified in the monitor log storage section 106, the retrieval section 108 specifies the record contained in the specified range, and notifies the record number of the record concerned to the playback section 109. As an example, the record number "876-1246" of the record contained in the appointed range shall be notified from the file for retrieval shown in drawing 4 (step S3002).

[0028] Next, the playback section 109 reads the record (abnormality level, the pointer to image data, monitor time of day, monitoring station) corresponding to the record number concerned from the file for retrieval to the order of a record number until it reads all the notified records. Moreover, based on the pointer to the read image data, image data is read from an image file (steps S3003 and S3004).

[0029] The playback section 109 is specified from the response relation table showing the record rate corresponding to the read abnormality level in drawing 3 (step S3005). The playback section 109 is the same rate as a record rate, and sends the alphabetic data in which image data, and abnormality level, a monitoring station and monitor time of day are shown to a display 130 (step S3006).

[0030] A display 130 displays the image data and alphabetic data which are sent from the playback section 109 (step S3007).

(Conclusion) As mentioned above, in the image monitoring system concerning the gestalt of this operation, in order to collect detailed information since the possibility of an abnormal occurrence is high when the temporal response of an image frame is large, a record rate is raised and an image frame is accumulated. On the other hand, in order to eliminate useless record as much as possible since the possibility of an abnormal occurrence is low when time amount change of an image frame is small, a record rate is lowered and image data is accumulated. Therefore, are recording of an image frame with the useless sufficient effectiveness which is not is attained, and the image frame at the time of being an abnormal occurrence can be recorded with high soundness.

[0031] Moreover, since it accumulates with an image frame by using abnormality level used as the index of the magnitude of time amount change of an image frame as a search key, an image frame can be promptly searched only with specifying the abnormality level concerned, and can be displayed by it. Moreover, since the image at the time of not being judged with it being unusual since the level of a record rate was adjusted according to time amount change of an image frame can also record a certain extent, it becomes easy specification of the process to an abnormal occurrence etc., to investigate [of the cause of

abnormalities] it, etc.

(Modification) In addition, this invention is not limited to the above-mentioned operation gestalt, and, naturally it is just going to assume the following modifications.

(1) Although image data shall be recorded on the monitor log storage section 106 as it is with the gestalt of this operation about record of image data, it is good also as what records the data which do not limit to this and were compressed by JPEG etc. Moreover, in this case, when a record rate is low, it is good also as what records the data which record the data compressed with high compressibility, or are in 2nd memory 121a, and which were made binary.

(2) The file for retrieval explained with the gestalt of this operation about the format of the file for retrieval may not be limited to this, and may add information other than this. For example, the file for retrieval as shown in drawing 8 may be used. The count which the same abnormality level follows is indicated to be the number of level continuation in this drawing. Since it is not necessary to confirm all of the abnormality level of a record by using the number of level continuation concerned, the time amount for specifying the record belonging to the specified range is reducible.

(3) Although one monitoring station shall be supervised with the gestalt of this operation using the image data obtained from one camera (photography section

101 a-c) about the image of a monitoring station, don't limit to this. For example, it is good also as what carries out field division of the image data of one sheet which shall supervise four locations with one camera and is obtained from a camera for every location, and performs above-mentioned processing of detection of a temporal response, setting out of a record rate, etc. for every division image data.

(4) With the gestalt of regenerative function book operation, although the playback section 109 shall reproduce image data at the same rate as the record rate corresponding to the abnormality level written in in the monitor log storage section 106, don't limit it to this. For example, it is good also as what reproduces image data for the monitor time of day written in the monitor log storage section 106 as a finer unit for 1 or less second according to the time interval of the monitor time of day concerned.

[0032] Moreover, with the gestalt of this operation, although the playback section 109 shall reproduce image data at the same rate as the record rate at the time of are recording of the image data concerned, it may not be limited to this and may give more various regenerative functions. Drawing 9 shows the example of the display screen in the image monitoring system equipped with the regenerative function of varieties. In addition to the playback (it expresses as the same rate as a record rate) in the control panel 601 shown in this drawing Coma delivery

(every one sheet), high-speed playback (it expresses as a high rate), low-speed playback (it expresses as a low rate), An operator chooses reverse playback (time amount is made into a reverse order and it reproduces) through the input section 107, and the playback section 109 is good also as what adjusts the rate of the image data sent to a display 130 according to the selection concerned.

(5) With the gestalt of migration of a camera and revolution functional book implementation, although fixed, don't limit a camera to this. For example, it is good also as what supervises two or more locations by rotating a camera a fixed period, or carrying in a transit robot and moving a fixed period. For example, after making one camera stay in the direction of a monitoring station A for 10 seconds, rotating in the direction of a monitoring station B, staying for 10 seconds, rotating in the direction of a monitoring station C after that and staying for 10 seconds, it shall rotate in the direction of the monitoring station A of a basis. In this case, it is necessary to adjust a record rate and to accumulate image data within the limits of 10 seconds, for every monitoring station.

[0033] Moreover, it is good also as what adjusts the time amount recorded besides adjusting a record rate within the limits of 10 seconds, respectively. For example, it is good also as what in the above-mentioned case is made to **** a camera in the direction of a monitoring station B, and continues accumulating the image data of a monitoring station B until the abnormality level concerned

becomes under a predetermined value, when abnormality level has become in the monitoring station B beyond the predetermined value.

(6) Although time amount change of image data was detected with the gestalt of this operation using the number (that is, area which changed) in which the pixel value of a binary-ized image carried out time amount change by image-processing section 102 a-c and variation calculation section 110 a-c about time amount variation, it is good also as what does not limit to this and detects time amount change of image data using the following approaches.

(A) It is good also as what detects component change of a color from a color picture using the camera which generates the change color picture of a color component. Especially this is effective in an indoor invader's detection, detection of a fire, etc.

(B) It is good also as what calculates the power spectrum about the frequency of the change image data of a power spectrum, and detects the change. The power spectrum about the frequency of image data shows correlation of image data, and when there is little correlation and abstractness is high, it has the property to approach 1/f fluctuation. By using this property, detection of abnormalities, such as trespass from which correlation of image data changes a lot especially, can be caught. In addition, since the detail of 1/f fluctuation is explained to "the world of blue back fluctuation" (warrior Toshimitsu work, Kodansha, 1980), more

detailed explanation is omitted here.

(C) It is good also as what detects the temperature change of a monitoring station using an infrared camera infrared camera. Especially this is effective in a monitor at night and a monitor in case it is works etc. and poor manufacture (abnormality situation) occurs owing to the abnormalities of temperature.

(D) It is good also as supervising a wide area using the image data from a satellite image satellite. Especially this is effective in disaster monitors, such as people's monitor of a motion of the inside of a specific area, and a flood in a river, etc.

(E) It is good also as what performs a more complicated image processing, extracts high order characteristic quantity to the other description processing image data, and computes change of the characteristic quantity concerned.

(7) With the gestalt of this operation about the object image of time amount change, although time amount variation was computed by having compared the image with the exposure time difference for 1 / 30 seconds, variation calculation section 110 a-c may not be limited to this, and may be used as an image which compares the following images.

(A) Time amount variation can be computed by memorizing the criteria image picturized and generated in always [forward] for every criteria image monitoring station (when having not caused abnormalities), and comparing a criteria image

and a photography image concerned.

(B) Like the monitor of a manufacturing facility by which a product is assembled on a prediction image band conveyor, when the change starts under a fixed principle in a monitoring station [as / that whose image data changes it is an ordinary state], based on the principle concerned, time amount variation can be computed by generating the prediction image in the picturized time of day, and comparing a prediction image and an image pick-up image concerned.

(C) It is good also as a thing using the image which is not aimed at the image which has 1 / exposure time difference in every 30 seconds in an image usual state with the exposure time difference according to the record rate in this time, but has an exposure time difference according to the record rate at that time. For example, when the record rate is set as 0.1 frames per second, transform-processing section 123a and variation calculation section 110a can compute the time amount change between images with the exposure time difference for 10 seconds by processing every 10 seconds.

(8) Record number

Although magnitude in which the sequential increment of the record number of the file for retrieval shall be carried out in the fixed range, a new record shall be recorded, and the fixed range concerned does not exceed the record record count of the part on the 1st shall be set up with the gestalt of this operation, it

does not limit to this. When the record which sets up narrowly the range fixed when the storage capacity of the monitor log storage section 106 is smaller than the capacity of the record which is a part on the 1st, and is newly recorded exceeds the fixed range concerned, it is good also as what the record most returned that is, recorded on the minimum record number in the past is overwritten, and disappears.

(9) Although time amount change of image data detected abnormality level (probability of abnormalities) with the gestalt of detection book operation of the abnormality level by other sensor data, it is good also as what does not limit to this and detects abnormality level by time amount change of the sensor data based on other sensing means.

(10) In the gestalt of this operation about a record rate, although an example with a comparatively low rate like drawing 3 was shown as an example of a record rate, if allowances are in storage capacity, it shall record at a rate higher than this. It is good also as what is especially recorded at the maximum rate, i.e., the rate which records all the photoed image frames, since it is desirable that it can see in the form near an animation as much as possible subsequently since the probability of an abnormal occurrence is high when abnormality level is max.

In addition to the function of the 1st operation gestalt, when abnormality level is more than constant value, other sensors detect the gestalt of <operation gestalt

of ** 2nd> book operation, and it is related with the image monitoring system equipped with the function which also sets and records sensing data.

[0034] Drawing 10 is the block diagram showing the configuration of the image monitoring system concerning the gestalt of this operation. In this drawing, since the component which attached the same sign as the 1st operation gestalt bears the same function as the 1st operation gestalt, explanation is omitted here. Hereafter, a different component is explained. Abnormality level-setting section 3103 a-c directs activation of sensing to sensing section 3120 a-c, when the set-up abnormality level is beyond a predetermined value (for example, more than level "5").

[0035] Sensing section 3120 a-c is installed in a monitoring station, collects the voice data of a monitoring station in response to the directions from abnormality level-setting section 3103 a-c, and sends the voice data concerned to monitor log write-in section 3105 a-c. Monitor log write-in section 3105 a-c writes the voice data which resembles the image data and attached information which were shown with the 1st operation gestalt according to a record rate, in addition is sent from sensing section 3120 a-c when abnormality level is beyond a predetermined value in the monitor log storage section 3106. For example, when record rates are 1 frames per second, the voice data from 1 second before to this time is written in.

[0036] The monitor log storage section 3106 stores an image file, a voice file, and a monitor log file. Among these, the image file is the same as that of the 1st operation gestalt. A voice file carries out postscript record of the voice data. Drawing 11 shows the configuration of a monitor log file. As shown in this drawing, the pointer to the voice file to voice data is also set and recorded.

[0037] When the read abnormality level is beyond a predetermined value, the playback section 3109 also cries in one voice and reads voice data, and is sent to the voice generating section 3110. The voice generating section 3110 outputs the voice sent from the playback section 3109.

(Conclusion) as mentioned above -- the time of time amount change of an image frame being sharp, and abnormality level being highly set up in the image monitoring system concerning the gestalt of this operation, -- an image frame -- in addition, since not only an image frame but voice data is reproduced when accumulating the voice data collected in the monitoring station and perusing subsequently, the situation of the abnormality situation is more reproducible with reality.

(Modification) In addition, this invention is not limited to the above-mentioned operation gestalt, and, naturally it is just going to assume the following modifications.

(1) Although the gestalt of other sensor data book operations explained voice

data, it is good also as what does not limit to this and records the data from other sensing means. For example, it is good also as a thing using the following.

(A) The sensor which detects gas, such as gas sensors CO, H2, and CH4, C2H5OH, and SO2, CO2, NOx, may be used. This is effective in the monitor of the monitor of the disaster by gas leakage, an oxygen deficiency, etc., the combustion condition of a manufacturing installation, etc. For example, when a fire etc. breaks out, a process until it results in the outbreak of a fire accompanying progress of fullness of town gas or a liquefied petroleum gas can be investigated at works, a home, etc.

(B) temperature, humidity, and an atmospheric-pressure sensor -- when the poor product manufactured at works etc. is generated by this, a manufacturing installation can use for examination of whether to have been operated under suitable temperature and humidity, or an atmospheric pressure.

(C) In addition, it is good also as what detects the MAG, an oscillation, an electric wave, etc. and records the detected data concerned according to a sensor and the other applications which detect the MAG, an oscillation, an electric wave, etc. Thereby, the existence of an activity of the cellular phone according to an invader by the cause of the defect of equipment and electric-wave detection of a specific frequency, the magnitude of the shake in case of an earthquake by oscillation, etc. can be caught for example, by

magnetic detection.

The gestalt of <operation gestalt of ** 3rd> book operation is related with the image monitoring system equipped with the function which also makes high abnormality level of other neighboring monitoring stations, when abnormality level becomes in one monitoring station more than constant value.

(Configuration) Drawing 12 shows the functional block diagram showing the configuration of the image monitoring system concerning the gestalt of this operation. In this drawing, since the component which attached the same sign as the 1st operation gestalt bears the same function as the 1st operation gestalt, explanation is omitted here. Hereafter, a different component is explained. Moreover, although this drawing shows the configuration to which three cameras (photography section) were connected, several cameras shall be connected besides this.

[0038] The abnormality level-setting section 3503 notifies the abnormality level concerned to the abnormality level forcible setting-out section 3501, when abnormality level is beyond a predetermined value (for example, more than level "4"). The abnormality level forcible setting-out section 3501 specifies the group to whom the monitoring station of the abnormality level-setting section 3503 which sent advice of abnormality level belongs. And to all the abnormality level-setting sections 3503 of others belonging to groups involved, the

abnormality level forcible setting-out section 3501 stops setting out of abnormality level based on change of image data, and sets advice as the same abnormality level as the abnormality level in a carrier beam compulsorily.

[0039] Drawing 13 shows the group classification of a monitoring station. The monitoring station which is geographically close is made to belong to the same group, as shown in this drawing. Drawing 14 shows the example of the abnormality level before and behind compulsive setting out of abnormality level. Since it belongs to a group with a monitoring station A, and the same B and C as shown in this drawing, if advice of abnormality level "4" is received from abnormality level-setting section 3503a, the abnormality level forcible setting-out section 3501 will stop setting out of abnormality level based on change of the image data in the abnormality level-setting sections 3503b and 3503c, and will set advice as the same abnormality level as the abnormality level in a carrier beam "4" compulsorily, for example.

(Conclusion) As mentioned above, in the image monitoring system concerning the gestalt of this operation When time amount change of an image frame is sharp in one monitoring station and abnormality level is set up highly if it can even perform catching time amount change of an image frame in one monitoring station since the abnormality level of other monitoring stations is also set as the same value -- even if -- being concerned -- others -- in a monitoring station Even

when time amount change of an image frame cannot be well caught by skillful trespass etc., the situation which fails to record the image frame of the flash of important abnormalities can be avoided.

(Modification) In addition, this invention is not limited to the above-mentioned operation gestalt, and, naturally it is just going to assume the following modifications.

[0040] That is, although forcible setting out of the abnormality level of all the monitoring stations belonging to the same group as the monitoring station was carried out with the gestalt of this operation at the same thing when the abnormality level of a specific monitoring station became beyond a predetermined value, it does not limit to this. For example, in the monitor of trespass etc., it is good also as what carries out forcible setting out only of the abnormality level of the monitoring station which recognizes an invader's migration direction and is located in the direction concerned by carrying out the image processing of the image data of the specific monitoring station where abnormality level became beyond a predetermined value further.

The gestalt of <operation gestalt of ** 4th> book operation is related with the image monitoring system which takes the system configuration which consists of remote center equipment connected with the terminal unit installed in each monitoring station at the communication line.

(Configuration) Drawing 15 is the block diagram showing the configuration of the image monitoring system concerning the gestalt of this operation. As shown in this drawing, image monitoring system consists of center equipment 3601 connected with terminal unit 3602 a-c by the communication line 3610.

[0041] Terminal unit 3602a is a consistency according to current abnormality level, sends the image data of the monitoring station which it takes charge of to center equipment, and consists of photography section 3604a, transmitting rate controller 3609a, and transceiver section 3605a. Photography section 3604a photos a monitoring station, and generates the image data of 30 digitized frames per second.

[0042] Transmitting rate controller 3609a sends image data to transceiver section 3605a from from at the transmission rate equivalent to the record rate sent from transceiver section 3605a among the image data of 30 frames per second generated by photography section 3604a. For example, when record rates are 0.5 frames per second, only the image data of one frame is transmitted among 60 frames generated in 2 seconds.

[0043] Transceiver section 3605a transmits the image data sent from transmitting rate controller 3609a to center equipment 3601 while sending a record rate to receipt and transmitting rate controller 3609a from center equipment 3601. Center equipment 3601 has the function which accumulates

image data and is searched while performing setting-out processing of abnormality level and a record rate from the image data which received. Since each component of center equipment 3601 is the same as that of the 1st operation gestalt almost, below, a different part is explained.

[0044] Image-processing section 3606 a-c, variation calculation section 3607 a-c, abnormality level-setting section 3608 a-c, and record rate setting-out section 3611 a-c operate with the 1st operation gestalt according to the record rate set as spacing by which image data is generated with the gestalt of this operation to having operated with 1 in all / time interval for 30 seconds. For example, when record rates are 0.5 frame / 1 second, it processes every 2 seconds. Although monitor log write-in section 105 a-c takes out image data from image-processing section 3606 a-c according to a record rate, this is the same also with the 1st operation gestalt. In addition, since the image data sent to image-processing section 3606 a-c is already digitized, with the gestalt of this operation, it shall not have digital converter 124 a-c like the 1st operation gestalt.

[0045] Record rate setting-out section 3611a transmits to terminal unit 3602a through the transceiver section 3603 while notifying the set-up recording level to the monitor log write-in section 1050. The transceiver section 3603 transmits the record rate sent from record rate setting-out section 3611 a-c to corresponding terminal unit 3602 a-c, and sends the image data which received from terminal

unit 3602 a-c to corresponding image-processing section 3603 a-c.

(Conclusion) As mentioned above, in the image monitoring system concerning the gestalt of this operation, since the image frame photoed and generated in the remote monitoring station is transmitted to center equipment at the transmitting rate according to the abnormality level of the monitoring station, it can prevent using a communication line vainly for transmission of an image frame with a low (there is little possibility of using subsequently.) significance.

(Modification) In addition, this invention is not limited to the above-mentioned operation gestalt, and, naturally it is just going to assume the following system configurations.

[0046] Namely, although a terminal unit shall photo image data, and shall be transmitted, change of image data shall be detected by the center equipment side and abnormality level shall be set up with the gestalt of this operation Not the thing to limit to this but a terminal unit detects change of image data itself. Abnormality level based on the detection concerned is set up, and image data and attached information are transmitted to center equipment through a communication line at the record rate according to the abnormality level concerned. With center equipment It is good also as what has only the function which accumulates the image data sent from the terminal unit, and attached information, and the function to search.

[0047]

[Effect of the Invention] This invention samples the image frame which the object for a monitor is picturized with a camera and obtained by time series, and stores it in the storage section so that clearly from the above explanation. The image frame which is the image monitoring system which searches and presents the image frame stored when having grasped the situation of abnormalities subsequently, and is obtained by time series is referred to. A change detection means to detect the change of state for a monitor, and a spacing setting-out means to set up the sampling period of the image frame stored in the storage section according to the detected change of state, It is characterized by having a set-up storing means to store an image frame in the storage section for every sampling period.

[0048] since this is based in the image frame obtained by time series, the possibility of the abnormal condition for a monitor is judged, a sampling period is shortened, an image frame records, when possibility are in an abnormal condition is high, a sampling period lengthens and the low image frame of possibility are in an abnormal condition records, are recording of an efficient image frame is attained -- the image frame at the abnormal occurrence event is [both] recordable with high soundness Moreover, since useless record was suppressed when the possibility of an abnormal occurrence was low, the amount

of the image frame accumulated decreases and, as a result, naturally, time amount which retrieval of a desired image frame takes can also be shortened.

[0049] Moreover, since a certain extent can also record an image frame when possibility of being in an abnormal condition is low, since a sampling period is adjusted according to change for a monitor, specification of the process to an abnormal occurrence, examination of the cause of abnormalities, etc. become easy. Said change detection means detects the level which shows the magnitude of a change of state here. Said storing means The level of the detected change of state is matched with said image frame, and it stores in the storage section. Said image monitoring system Furthermore, it can be characterized by having a level input means to specify retrieval of an image frame with the level of a change of state, a retrieval means to search the image frame corresponding to the specified level from said storage section, and a presentation means to show said searched image frame.

[0050] Thereby, since the level of the change of state for a monitor based on an image frame is matched with an image frame and recorded, by using the level of the change concerned as a search key, only by specifying the level of a change of state, an operator can search promptly the image frame corresponding to the level of the change concerned, and can display it. A sensing means for said image monitoring system to detect further the voice produced in the object for a

monitor, temperature, humidity, an atmospheric pressure, gas, the MAG, an oscillation, or an electric wave here, and to generate sensor information, It has a presentation means to show the image frame stored in storage circles. Said storing means When the level of the detected change of state is beyond a predetermined value, the sensor information generated by said sensing means is matched with said image frame, and it stores in the storage section. Said presentation means It can be characterized by showing the sensor information stored in the storage circles corresponding to the image frame which it is going to show.

[0051] Since other sensor information is doubled and recorded in addition to an image frame and the sensor information concerned is also shown by this at the time of playback in addition to an image frame, the situation of abnormalities can be reproduced with reality. here -- said storing means -- a time check -- the storing time of day of the image frame which it is going to store can be matched with said image frame including a timer, and it can store in the storage section, and can be characterized by equipping said image monitoring system with a presentation means to show the image frame further stored in storage circles with the same time interval as spacing of the storing time of day of the image frame concerned.

[0052] Since the time interval according to the time of day which the recorded

image frame recorded by this is maintained and it is reproduced, an image frame can be reproduced with the same time scale as reality, and the situation of abnormalities can be grasped with reality. Here, said spacing setting-out means can set up a sampling period according to the level of a change of state, and can be characterized by said presentation means presenting said searched image frame with the same time interval as the sampling period corresponding to the level of the change of state of the image frame concerned.

[0053] Since a sampling period when the recorded image frame records by this is maintained and sequential playback is carried out, an image frame can be reproduced with the same time scale as reality, and the situation of abnormalities can be grasped with reality. Said image monitoring system acquires an image frame for two or more objects for a monitor of every here. Said change detection means Change is detected for every image frame with which the objects for a monitor differ. Said spacing setting-out means The sampling period of the every for a monitor is set up. Said storing means An image frame is matched with the object for a monitor of the image frame concerned, and it stores in the storage section for every sampling period in this object for a monitor concerned. Said image system Furthermore, it can be characterized by having an input means to specify retrieval of an image frame per object for a monitor, a retrieval means to search the image frame

corresponding to the specified object for a monitor from said storage section, and a presentation means to show said searched image frame.

[0054] Since the data in which the object for a monitor is shown are also recorded by this, retrieval narrowed down to the specific object for a monitor can be performed subsequently, and a required image frame can be searched promptly and can be displayed. Further said image monitoring system here with said spacing setting-out means When the sampling period in the object for a monitor of 1 is set below to a predetermined value, the spacing setting-out means concerned is received. setting out of the sampling period in other objects for a monitor relevant to the object for a monitor of 1 is stopped -- making -- being concerned -- others -- it can be characterized by having the control means which sets the sampling period in the object for a monitor as the same value as the sampling period for [of 1] a monitor.

[0055] Since the sampling period for [of the probability which the change of state for a monitor starts in near futures, such as the neighborhood of it, / high] a monitor is also short set up when the change of state for [specific] a monitor starts and a sampling period becomes short by this, it is not necessary to detect a change of state for [concerned] a monitor, and the image frame of an important flash can be recorded certainly. Moreover, the situation which cannot record the image frame of the flash of important abnormalities especially in

skillful trespass etc. even if it cannot catch change for [other] a monitor, if it can even perform catching the change of state for [one] a monitor even when the change of state for a monitor cannot be caught well is avoidable.

[0056] Here, said change detection means can be characterized by detecting the change of state for a monitor based on the criteria image frame beforehand remembered to be the image frame obtained by time series. The change of state for a monitor is [with this] detectable to simple and accuracy with the comparison with the image frame at the time of detecting the criteria image frame concerned and change by using the image frame for [at the time of abnormalities (always / forward /) not starting] a monitor as a criteria image frame. Moreover, even while a trespasser is fixed and he is standing it still for example, since the image frame then obtained differs from the criteria image frame of forward always without trespass, it can detect change of an executive state well.

[0057] Here, said change detection means can be characterized by detecting the change of state for a monitor based on an image frame before and after being obtained by time series. The change of state for a monitor is detectable to simple and accuracy with the comparison with the image frame at the time of this detecting change, and the image frame of one frame ago. Moreover, even when the image frame for [of forward always] a monitor changes with conditions,

such as the weather, and cannot prepare a suitable criteria image frame well, the change of state for a monitor can be well detected by comparing the image frame of order.

[0058] Here, said change detection means can be characterized by detecting the change of state for a monitor between said two image frames based on the number of pixels with which the pixel value changed. The change of state for [, such as trespass,] a monitor is well detectable with simple processing in which this calculates the area from which the value of a pixel changed.

[0059] Here, said change detection means can be characterized by comparing the color component between said two image frames, and detecting the change of state for a monitor. Thereby, the change of state for [, such as a trespasser (the usual trespass is so.) who coiled the clothes of the color of a background and a different color, and a fire which a red hue increases,] a monitor is well detectable with simple processing in which change of the color of a color picture is detected.

[0060] Here, said change detection means can be characterized by comparing the power spectrum about the spatial frequency of the pixel value between said two image frames, and detecting the change of state for a monitor. Thereby, the change of state for [, such as trespass,] a monitor is well detectable with simple processing called count of the power spectrum of an image frame.

[0061] Here, said change detection means detects the level of a change of state, and said spacing setting-out means sets a sampling period as short spacing, so that the level of the detected change of state is large. Since a sampling period is shortened and an image frame is recorded by this when the level of the change of state for a monitor is large, when the possibility of an abnormal occurrence is high, information is collectable in a detail. On the other hand, since a sampling period is lengthened and an image frame is recorded when the level of change of an image frame is small, when possibility of being in an abnormal condition is low, if possible, useless record can be eliminated.

[0062] Here, said change detection means can detect the level of a change of state, and it can be characterized by said spacing setting-out means setting a sampling period as the same spacing as the time interval of the image frame obtained by time series, when the level of the detected change of state is beyond a predetermined value. Thereby, the level of the change of state for a monitor is beyond a predetermined value, and since all are recorded as it is, without thinning out the acquired image frame when the probability of abnormalities is high, the image frame at the event is certainly recordable.

[0063] Moreover, the terminal unit which samples the image frame which this invention is picturized with a camera and obtained by time series, and is transmitted to center equipment, It is the image monitoring system which

consists of center equipment which searches and presents the image frame which stored the received image frame in the storage section, and was stored when having grasped the situation of abnormalities subsequently. A means to receive the data which said terminal unit shows the sampling period of an image frame from center equipment, It has a means to transmit an image frame to center equipment, for said every sampling period. Said center equipment A change detection means to detect the change of state for a monitor with reference to the received image frame, It is characterized by having a spacing setting-out means to set up the sampling period of an image frame, a means to transmit the data in which said sampling period is shown to a terminal unit, and a storing means to store the received image frame in the storage section, according to the detected change of state.

[0064] Since it is adjusted so that it may become high when the change of state for a monitor has the large sampling period of the image frame sent to the center equipment from a terminal unit in the image monitoring system which the image frame for the monitor from a terminal unit is sent to center equipment by this, bundles up the image frame concerned with center equipment, and is managed and may become low when a change of state is small, a communication line can be used efficiently, and an image frame can be sent.

[0065] Moreover, this invention samples the image frame which is picturized with

a camera and obtained by time series, and stores it in the storage section. The image frame which is the image monitor approach of searching and showing the image frame stored when having grasped the situation of abnormalities subsequently, and is obtained by time series is referred to. It is characterized by including the step which detects the change of state for a monitor, the step which sets up the sampling period of the image frame stored in the storage section according to the detected change of state, and the set-up step which stores an image frame in the storage section for every sampling period.

[0066] since this is based in the image frame obtained by time series and the sampling period of an image frame is set up, are recording of an efficient image frame is attained -- the image frame at the abnormal occurrence event is [both] recordable with high soundness. Moreover, since useless record was suppressed when the possibility of an abnormal occurrence was low, time amount which retrieval of a desired image frame takes can also be shortened. Moreover, since a certain extent can also record an image frame when possibility of being in an abnormal condition is low, specification of the process to an abnormal occurrence, examination of the cause of abnormalities, etc. become easy.

[0067] Moreover, this invention samples the image frame which is picturized with a camera and obtained by time series, and stores it in the storage section. The

image frame which is the record medium which recorded the program which searches and presents the image frame stored when having grasped the situation of abnormalities subsequently, and in which computer reading is possible, and is obtained by time series is referred to. The step which detects the change of state for a monitor, and the step which sets up the sampling period of the image frame stored in the storage section according to the detected change of state, It is characterized by recording the program which makes a computer perform the set-up step which stores an image frame in the storage section for every sampling period.

[0068] since this is based in the image frame obtained by time series and the sampling period of an image frame is set up, are recording of an efficient image frame is attained -- the image frame at the abnormal occurrence event is [both] recordable with high soundness. Moreover, since useless record was suppressed when the possibility of an abnormal occurrence was low, time amount which retrieval of a desired image frame takes can also be shortened. Moreover, since a certain extent can also record an image frame when possibility of being in an abnormal condition is low, specification of the process to an abnormal occurrence, examination of the cause of abnormalities, etc. become easy.

[0069] As mentioned above, the image monitoring system concerning this

invention The specification of situations, such as trespass in a building or a house, an outbreak of a fire, poor manufacture in works, and disaster generating in a wide area, or the cause of those sake, whenever [according to the utility value / detail / frame / for a monitor / image / in the bottom of constraint of the limited system resource (storage capacity, channel capacity) and the limited human resource (time and effort which searches the image at the abnormality event)] -- and -- since it accumulates in the format suitable for subsequent retrieval -- as a matter of fact -- business -- the-like effectiveness is very large.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the image structure of a system concerning the gestalt of operation of this invention.

[Drawing 2] The response relation between time amount variation and abnormality level is shown.

[Drawing 3] The response relation between abnormality level and a record rate is shown.

[Drawing 4] A format of the file for retrieval is shown.

[Drawing 5] The item inputted from the input section 107 is shown.

[Drawing 6] It is the flow chart which shows the operations sequence which accumulates image data.

[Drawing 7] It is the flow chart which shows the operations sequence which searches and peruses image data.

[Drawing 8] A format of the file for retrieval is shown.

[Drawing 9] The example of the display screen is shown.

[Drawing 10] It is the block diagram showing the configuration of the image monitoring system concerning the gestalt of operation of this invention.

[Drawing 11] The configuration of a monitor log file is shown.

[Drawing 12] The functional block diagram showing the configuration of the image monitoring system concerning the gestalt of operation of this invention is shown.

[Drawing 13] The group classification of a monitoring station is shown.

[Drawing 14] The example of the abnormality level before and behind compulsive setting out of abnormality level is shown.

[Drawing 15] It is the block diagram showing the configuration of the image monitoring system concerning the gestalt of operation of this invention.

[Description of Notations]

100 Image Monitoring System

101 a-c Photography section

102 a-c Image-processing section

103 a-c Abnormality level-setting section

104 a-c Record rate setting-out section

105 a-c The monitor log write-in section

106 Monitor Log Storage Section

107 Input Section

108 Retrieval Section

109 Playback Section

110 a-c Variation calculation section

120 a-c The 1st memory

121 a-c The 2nd memory

122 a-c The 3rd memory

123 a-c Transform-processing section

124 a-c Digital converter

130 Display

150 Timer Section

601 Control Panel

3100 Image Monitoring System

3103 a-c Abnormality level-setting section

3105 a-c The monitor log write-in section

3106 Monitor Log Storage Section

3109 Playback Section

3110 Voice Generating Section

3120 a-c Sensing section

3500 Image Monitoring System

3501 Abnormality Level Forcible Setting-Out Section

3503 a-c Abnormality level-setting section

3601 Center Equipment

3602 a-c Terminal unit

3603 Transceiver Section

3604 a-c Photography section

3605 a-c Transceiver section

3606 a-c Image-processing section

3607 a-c Variation calculation section

3608 a-c Abnormality level-setting section

3609 a-c Transmitting rate controller

3610 Communication Line

3611 a-c Record rate setting-out section